

Abstract

Method for detecting of the change of a physically measurable property of a sample due to an environmental effect, in which

- (i) the sample is subjected to the environmental effect for an action time Δt , the environmental effect being made to act on the sample with a known position-dependent intensity distribution $I(x, y)$ (intensity pattern), which is based on a pattern function $M(x, y)$,
- (ii) the transmission, reflection or scattering of analysis radiation by the sample is subsequently detected as a function of the position coordinates (x, y) of the sample and the wavelength λ of the analysis radiation, so as to determine a response function $A(x, y, \lambda)$ which describes the intensity of the transmitted, reflected or scattered analysis radiation as a function of the position coordinates (x, y) of the sample and the wavelength λ ,
- (iii) the correlation of the known position-dependent intensity distribution $I(x, y)$ of the environmental effect, or of the pattern function $M(x, y)$ on which is based, with the response function $A(x, y, \lambda)$ is determined by correlation analysis, this correlation being a measure of the change of the physically measurable property of the sample due to the environmental effect.

(Figure 1)